Chapter 2: The MP&M Industry and the Need for Regulation

Introduction

The Metal Products and Machinery **(MP&M)** regulation will apply to eight industrial subcategories based on the production processes used and the wastes they generate. MP&M subcategories include: general metals, metal finishing job shops, non-chromium anodizing, printed wiring board, steel forming & finishing, oily waste, railroad line maintenance, and shipbuilding dry docks.

The facilities regulated under this rule produce, manufacture, rebuild, or maintain metal parts, products, or machines that are used in seventeen different markets. These market sectors include: hardware, aircraft, aerospace, ordnance, electronic equipment, stationary industrial equipment, mobile industrial equipment, buses and trucks, motor vehicles, household equipment, instruments, office machines, railroads, ships and boats, precious and non-precious metals, and other metal products. Most of the subcategories above serve multiple markets.

This chapter provides an overview of the MP&M industry and focuses on the pollutant discharges from MP&M facilities potentially subject to regulation. The chapter also reviews additional reasons why EPA is proposing to regulate the industry's effluent discharges. This section discusses: the need to reduce pollutant discharges from the MP&M industry, the issue of addressing market imperfections, the need to achieve a more coherent regulatory framework for the industry, and requirements that stem from the ***Clean Water Act*** **(CWA)** and litigation.

Chapter Contents:

2.1 Overview of the Facilities Potentially Subject to Regulation

The proposed regulation will apply to process wastewater discharges from MP&M sites performing manufacturing, rebuilding, or maintenance on a metal part, product, or machine to be used in the industrial sectors listed above. The rule does not cover non-process wastewater, MP&M operations that are ancillary activities at facilities outside the industrial sectors, or MP&M operations when performed at gasoline stations or vehicle rental facilities.[1] The proposed regulatory requirements are specified for the eight subcategories noted above, which are defined based on the unit operations performed and the nature of the waste generated.

"MP&M facilities" are facilities that produce metal parts, products or machines for use in one of the market sectors, using operations covered by one of the eight industrial subcategories, that discharge process wastewater, either directly or indirectly, to surface waters. Subcategory facilities frequently produce products for multiple sectors. It is important to note that "MP&M facilities", as defined here, represent only a portion of all facilities in the industrial sectors, since some facilities may perform operations that are not covered by one of the subcategories (i.e., part assembly or plastic molding) and some may not generate or discharge process wastewater.

[1] Section III of the preamble accompanying the proposed rule provides a more detailed discussion of the scope of the rule.

Department of Commerce data indicate that there are more than 1.3 million establishments operating in potential MP&M industries. These establishments are defined by approximately 200 SIC codes.[2] The MP&M survey results indicate that there are approximately 85,000 MP&M facilities that manufacture, rebuild, or repair metal machines, parts, products, or equipment using processes covered by the proposed subcategories. Of these 85,000, approximately 22,000 do not use or discharge water or use a contract hauler for their wastewater. Only 62,752 facilities, or 74.8 percent, are water-discharging facilities that could be potentially subject to the MP&M regulation. These 62,752 water-discharging facilities include 57,948 indirect dischargers (i.e., facilities discharging effluent to a ***publicly-owned sewage treatment works*** or **POTW**s) that would be subject to Pretreatment Standards for Existing Sources (PSES). The remaining 4,804 facilities are direct dischargers (i.e., they discharge effluent directly to a waterway under a National Pollutant Discharge Elimination System **(NPDES)** permit) and would thus be subject to ***Best Available Technology Economically Achievable*** **(BAT)** and ***Best Practicable Control Technology Currently Available*** **(BPT)** requirements.

Of the 62,752 water discharging facilities, 3,766[3] are predicted to close in the baseline, leaving 58,986 existing facilities that EPA estimates could be regulated.[4] The proposed rule would regulate 9,839 of these facilities, including 5,186 indirect discharging facilities and 4,653 direct dischargers. The estimated 9,839 water-discharging facilities that are regulated under the preferred option represent less than 0.8 percent of all facilities in the MP&M industries, and 15.7 percent of those that are potentially regulated. Table 2.1 summarizes important information on the total number of MP&M facilities that could potentially be regulated, and the number that would be regulated under the proposed rule.

Table 2.1 shows that a substantial portion (52,762 or 91 percent) of the potentially-regulated indirect dischargers will not be subject to requirements under the proposed rule. EPA proposes to exclude indirect dischargers below certain low thresholds in the General Metals and Oily Waste subcategories (20,164 and 28,092, respectively). The Agency also proposes to exclude indirect dischargers in three subcategories whose effluents are not expected to present significant environmental harm when discharged through POTWs (150 Non-Chromium Anodizing, 799 Railroad Line Maintenance, and 6 Shipbuilding Dry Dock facilities).[5] The proposed rule will regulate 4,653 direct dischargers -- all of the direct discharging MP&M facilities that continue to operate in the baseline.

2.2 MP&M Discharges and the Need For Regulation

EPA is regulating the MP&M industry because the industry releases substantial quantities of pollutants, including toxic pollutant compounds (priority and nonconventional metals and organics) and ***conventional pollutants*** such as ***total suspended solids*** **(TSS)** and ***oil and grease*** **(O&G)**. These MP&M industry pollutants are generally controlled by straightforward and widely-used treatment system technologies such as chemical precipitation and clarification (frequently referred to as the lime and settle process).[6]

Discharges of these pollutants to surface waters and POTWs have a number of adverse effects, including degradation of aquatic habitats, reduced survivability and diversity of native aquatic life, and increased human health risk through the consumption of contaminated fish and water. In addition, many of these pollutants volatilize into the air, disrupt biological wastewater treatment systems, and contaminate sewage sludge.

[2] Appendix A provides a list of the SIC codes in each industry sector.

[3] This figure excludes an estimated 64 facilities that EPA predicts would close in the baseline but that are expected to continue operations under the proposed rule. Chapter 5 explains the impact of potential revenue increases resulting from market adjustments to the rule that may result in such "avoided closures."

[4] These are facilities that are predicted to close due to weak financial performance under baseline conditions, i.e., in the absence of the proposed rule. EPA does not attribute the costs or the reduced discharges resulting from these baseline closures to the proposed rule, and therefore excludes these facilities from its analyses of the rule's impacts. Baseline closures account for differences between the universe of facilities discussed in this report and the universe discussed in Section IV of the preamble and the *Technical Development Document.*

[5] Also excluded are 3,614 (out of the 57,948) indirect dischargers EPA predicts will close in the baseline, and an additional 151 direct dischargers predicted to close in the baseline.

[6] See Chapter 12 and Appendix E for more detailed information on the pollutants of concern in the MP&M industry.

Table 2.1: Summary of MP&M Facilities Potentially and Actually Regulated Under the Proposed Rule

Subcategory	Indirect Dischargers		Direct Dischargers	
	Water Dischargers (# of facilities)	Regulated under Proposed Rule (# of facilities)	Water Dischargers (# of facilities)	Regulated under Proposed Rule (# of facilities)
General Metals	26,191	3,103	3,784	3,636
Metal Finishing Job Shop	1,514	1,231	15	12
Non-Chromium Anodizing	190	0	0	0
Printed Wiring Board	624	621	11	11
Steel Forming & Finishing	110	105	43	43
Oily Waste	28,514	126	911	911
Railroad Line Maintenance	799	0	34	34
Shipbuilding Dry Dock	6	0	6	6
All Categories	57,948	5,186	4,804	4,653

Source: U.S. EPA analysis.

Metal constituents are of particular concern because of the large amounts present in MP&M effluents. Unlike some organic compounds and other wastes that are metabolized in activated sludge systems to relatively innocuous constituents, metals are elements and cannot be eliminated. Moreover, in solution, some metals have a high affinity for biological uptake. Depending on site-specific conditions, metals form insoluble inorganic and organic complexes that partition to sewage sludge at POTWs or underlying sediment in aquatic ecosystems. The accumulated metal constituents can return to a ***bioavailable*** form upon land application of sewage sludge; dredging and resuspension of sediment; or as a result of seasonal, natural, or induced alteration of sediment chemistry.

Benefits of reducing metal and other pollutant loads to the environment from MP&M facilities include reduced risk of cancer and systemic human health risks, improved recreation opportunities (e.g., fishing , swimming, boating, and other near-water recreational activities), improved aquatic and benthic habitats, and less costly sewage sludge disposal and increased beneficial use of the sludge.[7]

The goal of the MP&M regulation is to reduce pollutant discharges and to eliminate or reduce the level of risk and harm caused by them. These pollutant discharges and their harmful consequences are the ***externalities*** that the MP&M regulation addresses, as discussed in Section 2.3.

2.2.1 Baseline MP&M Discharges

Tables 2.2 and 2.3 provide an overview of the discharges from MP&M facilities that are potentially regulated under the proposed rule. Loadings are defined as ***toxic-weighted*** loadings. This measure weights quantities of different pollutants in effluents by a measure of their relative toxicity. Toxic-weighted loadings measures the relative toxic effects of discharges containing different mixtures of pollutants. MP&M discharges also contain conventional pollutants with little or no toxic effects that nonetheless can have adverse environmental impacts, such as O&G and some components of TSS. Tables 2.2 and 2.3 present discharges at baseline and under the proposed rule — not the *effect* of the pollutants.

[7] Sewage sludge is also called biosolids.

Table 2.2: Toxic-Weighted Discharges for Potentially Regulated MP&M Facilities and Those Regulated under the Proposed Rule Indirect Dischargers[a] (Pounds Equivalent)

Subcategory	Baseline Discharges	# Facilities in the Baseline	Average Baseline Loadings per Facility	Remaining Discharges Under Proposed Rule
General Metals	28,370,265	23,204	1,223	20,550,241
Metal Finishing Job Shop	6,352,993	1,231	5,161	1,978,438
Non-Chromium Anodizing	54,517	150	363	54,517
Printed Wiring Board	409,588	621	6,595	2,563,010
Steel Forming & Finishing	656,688	105	6,254	427,646
Oily Waste	377,567	28,219	13	348,803
Railroad Line Maintenance	1,757	799	2	1,757
Shipbuilding Dry Dock	831	6	139	831
All Categories	39,910,106	54,333	735	25,925,243

[a] Excludes dischargers from facilities that are projected to close in the baseline (5,312,613 lbs-equiv., or an average of 1,470 lbs-equiv. per closing facility). Discharges discussed in this table are total discharges from the facility, and do not reflect POTW pollutant removals. EPA believes it is appropriate to analyze wastewater discharges disregarding the POTW removals because indirect discharges present environmental risks that are not fully addressed by POTW treatment. The MP&M industry releases 89 pollutants that cause inhibition problems at POTWs and an additional 35 hazardous air pollutants (HAPs) that may present a threat to human health or the environment. Other MP&M pollutants are found POTW in sludge. Only eight of these pollutants have land application pollutant criteria that limit the uses of sludge.

Source: U.S. EPA analysis.

The large number of General Metals facilities account for over 71 percent of total toxic-weighted baseline loadings from facilities that continue to operate in the baseline, followed by Metal Finishing Job Shop facilities (16 percent), and Printed Wiring Board facilities (10 percent). On a per-facility basis, however, the largest toxic-weighted discharges come from Printed Wiring Board, Steel Forming & Finishing and Metal Finishing Job Shop facilities. These facilities discharge an average of 5,000 to over 6,000 lbs equivalent each, compared with an average per facility discharge of 735 lbs equivalent for the potentially regulated MP&M facilities as a whole.

Table 2.3 provides the same information for direct discharging facilities. The large number of General Metals direct dischargers again account for the majority (64 percent) of total toxic-weighted discharges in the baseline.

Table 2.3: Toxic-Weighted Discharges for Potentially Regulated MP&M Facilities and Those Regulated under the Proposed Rule Direct Dischargers[a] (Pounds Equivalent)

Subcategory	Baseline Discharges	# Facilities in the Baseline	Average Baseline Loadings per Facility	Remaining Discharges Under Proposed Rule
General Metals	1,486,108	3,636	409	586,837
Metal Finishing Job Shop	22,496	12	1,875	8,301
Non-Chromium Anodizing				
Printed Wiring Board	142,535	11	12,958	77,962
Steel Forming & Finishing	626,274	43	14,565	28,126
Oily Waste	40,634	911	45	24,564
Railroad Line Maintenance	1,267	34	37	1,093
Shipbuilding Dry Dock	2,667	6	445	2,556
All Categories	2,321,981	4,653	499	988,439

[a] Excludes dischargers from facilities that are projected to close in the baseline (1,780,229 lbs-equiv., or an average of 5,167 lbs-equiv. per closing facility). Discharges discussed in this table are total discharges from the facility, and do not account for POTW pollutant removals. EPA believes it is appropriate to analyze wastewater discharges disregarding the POTW removals because indirect discharges present environmental risks that are not fully addressed by POTW treatment. The MP&M industry releases 89 pollutants that cause inhibition problems at POTWs and an additional 35 hazardous air pollutants (HAPs) that may present a threat to human health or the environment. Other MP&M pollutants released by the industry are found in POTW sludge. Only eight of these pollutants have land application pollutant criteria that limit the uses of sludge.
Source: U.S. EPA analysis.

2.2.2 Discharges under the MP&M Regulation

Tables 2.2 and 2.3 also show the toxic loadings that would remain after implementation of the proposed rule, for indirect and direct dischargers respectively. These reductions result from increased treatment of effluents and pollution prevention at facilities that continue to operate subject to the regulation, and from the elimination of discharges at facilities that close as a result of the rule. The proposed rule would eliminate 35 percent of the baseline toxic-weighted discharges from indirect dischargers and 57 percent of the baseline loadings from direct dischargers. Additional information on the environmental effects of the proposed rule and two other options can be found in *Part III: Environmental Impacts and Benefits* of this report, and in Appendix E.

Table 2.4 shows baseline and post-regulation loadings by type of pollutant, both as unweighted pounds and on a toxic-weighted basis, for facilities that are regulated under the proposed rule. The facilities that are regulated account for 70 percent of the baseline toxic-weighted releases from all potentially-regulated facilities. The proposed rule eliminates 89 percent of the baseline toxic-weighted loadings from the facilities that are regulated, including 92 percent of the ***priority pollutants*** (91 percent of the metals, 52 percent of the organics, and 99 percent of the cyanide) and 81 percent of the ***nonconventional pollutants*** (82 percent of the metals and 30 percent of the organics). The proposed rule also eliminates substantial portions of the baseline discharges of conventional pollutants from the regulated facilities, including 75 percent of the ***chemical oxygen demand*** **(COD)**, 90 percent of the O&G, and 88 percent of the TSS.[8]

[8] It is not possible to provide an overall estimate of total pollutant pounds removed, because overlap among some of the pollutant categories would result in double-counting if the categories were summed. For example, TSS may include some of the priority pollutant and nonconventional metals discharges. Use of the toxic-weighted loadings avoids this double-counting, but does not include conventional pollutants.

Table 2.4: Summary of Discharges by Pollutant Type for Facilities Regulated under the Proposed Rule[a]

Pollutant Category	Current Releases		Releases under The Proposed Rule		Proposed Rule Reductions	
	Pounds	Pounds Eq.	Pounds	Pounds Eq.	Pounds	Pounds Eq.
Priority Pollutants						
Metals	34,527,668	16,476,843	2,018,185	1,500,230	32,509,483	14,976,613
Organics	2,095,832	323,410	1,024,636	156,560	1,071,196	166,850
Cyanide (CN)	4,718,247	5,190,072	35,881	39,469	4,682,366	5,150,603
Nonconventional Pollutants						
Metals	120,756,930	7,201,034	23,723,669	1,265,904	97,033,261	5,935,130
Organics	50,468,179	210,501	9,411,727	146,873	41,056,452	63,628
Conventional Pollutants						
COD	2,445,579,193		601,888,710		1,843,690,483	
O&G	220,782,391		20,953,718		199,828,673	
TSS	231,466,565		27,404,519		204,062,046	

[a] Discharges discussed in this table are facility discharges and do not account for POTW removals. EPA believes it is appropriate to analyze wastewater discharges disregarding the POTW removals because indirect discharges present environmental risks that are not fully addressed by POTW treatment. The MP&M industry releases 89 pollutants that cause inhibition problems at POTWs and an additional 35 hazardous air pollutants (HAPs) that may present a threat to human health or the environment. Other MP&M pollutants released by the industry are found in POTW sludge. Only eight of these pollutants have land application pollutant criteria that limit the uses of sludge.
Source: U.S. EPA analysis.

2.3 Addressing Market Imperfections

Environmental legislation in general, and the CWA and the MP&M regulation in particular, seek to correct imperfections — ***uncompensated*** environmental externalities — in the functioning of the market economy. In manufacturing, rebuilding, and repairing metal products and machinery, MP&M facilities release pollutants that increase risks to human health and aquatic life and cause other environmental harm without accounting for the consequences of these actions on other parties (sometimes referred to as ***third parties***) who do not directly participate in the business transactions of the business entities.

These costs are not borne by the responsible entities and are therefore *external* to the production and pricing decisions of the responsible entity.

A profit-maximizing firm or a cost-minimizing government-owned facility will ignore these costs when deciding how much to produce and how to produce it. In addition, the externality is uncompensated because no party is compensated for the adverse consequences of the pollution releases.

When these external costs are not accounted for in the production and pricing decisions of the responsible entities, their decisions will yield a mix and quantity of goods and services in the economy, and an allocation of economic resources to production activities, that are less than optimal. In particular, the quantity of pollution and related environmental harm caused by the activities of the responsible entities will, in general, exceed ***socially optimal levels***. As a result, society will not maximize total social welfare.

In addition, adverse ***distributional effects*** may accompany the uncompensated environmental externalities. If the distribution of pollution and environmental harm is not random among the U.S. population, but instead is concentrated among certain population subgroups based on socio-economic or other demographic characteristics, then the uncompensated environmental externalities may produce undesirable transfers of economic welfare among subgroups of the population. See *Chapter 17: Environmental Justice and Protection of Children* for more information.

The goal of environmental legislation and implementing regulations, including the proposed MP&M rule that is the subject of this EEBA, is to correct these environmental externalities by requiring businesses and other polluting entities to reduce their pollution and environmental harm. Congress, in enacting the authorizing legislation, and EPA, in promulgating the implementing regulations, act on behalf of society to achieve a mix of goods and services and a level of pollution that more nearly approximates socially optimal levels. As a result, the mix and quantity of goods and services provided by the economy, the allocation of economic resources to those activities, and *the quantity of pollution and environmental harm accompanying those activities* will yield higher net economic welfare to society.

Requiring polluting entities to reduce levels of pollution and environmental harm is one approach to addressing the problem of environmental externalities. This approach imposes costs on the polluting entities in the form of compliance costs incurred to reduce pollution to allowed levels. A polluting entity will either incur the costs of meeting the regulatory limits or will determine that compliance is not in its best financial interest and will cease the pollution-generating activities. This approach to addressing the problem of environmental externalities will generally result in improved economic efficiency and net welfare gains for society if the cost of reducing the pollution and environmental harm activities is less than the value of benefits to society from the reduced pollution and environmental harm.

It is theoretically possible to correct the market imperfection by means other than direct regulation. For example, negotiation and/or litigation could achieve an optimal allocation of economic resources and mix of production activities within the economy. However, the transaction costs of assembling the affected parties and involving them in the negotiation/litigation process, as well as the public goods character of the improvement sought by negotiation or litigation, make this approach impractical.

2.4 Achieving a More Complete and Coherent Regulatory Framework for the Metals Industries

The MP&M regulation will help to achieve a more coherent regulatory framework for the effluent discharge limitations that apply to the MP&M industry and other metals industries whose operations may overlap with the MP&M industry.

EPA has previously promulgated effluent guidelines regulations for thirteen metals-related industries. In some instances, these industries may perform operations that are found in MP&M facilities. These effluent guidelines are:

- Electroplating (40 CFR Part 413),
- Iron & Steel Manufacturing (40 CFR Part 420),
- Nonferrous Metals Manufacturing (40 CFR Part 421),
- Ferroalloy Manufacturing (40 CFR Part 424),
- Metal Finishing (40 CFR Part 433),
- Battery Manufacturing (40 CFR Part 461),
- Metal Molding & Casting (40 CFR Part 464),
- Coil Coating (40 CFR Part 465),
- Porcelain Enameling (40 CFR Part 466),
- Aluminum Forming (40 CFR Part 467),
- Copper Forming (40 CFR Part 468),
- Electrical & Electronic Components (40 CFR Part 469), and
- Nonferrous Metals Forming & Metal Powders (40 CFR Part 471).

In 1986, the Agency reviewed coverage of these regulations and identified a significant number of metals processing facilities discharging wastewater that these 13 regulations did not cover. Based on this review, EPA performed a more detailed analysis of these unregulated sites and identified the discharge of significant amounts of pollutants. This analysis resulted in the formation of the "Machinery Manufacturing and Rebuilding" **(MM&R)** point source category. In 1992, EPA changed the name of the category to "Metal Products and Machinery" (MP&M) to clarify coverage of the category (57 FR 19748).

EPA recognizes that in some cases unit operations performed in industries covered by the existing effluent guidelines are the same as unit operations performed at MP&M facilities. In general, where unit operations and their associated wastewater discharges are already covered by an existing effluent guideline, they will remain covered under that effluent guideline. (See 40 CFR438.1(b)). However, some facilities currently regulated under the existing Electroplating (40 CFR 413) and Metal Finishing (40 CFR 433) effluent guidelines will be covered by the MP&M regulation instead. EPA is proposing to replace the existing Electroplating (40 CFR 413) and Metal Finishing (40 CFR 433) effluent guidelines with the MP&M regulations for all facilities in the Printed Wiring Board subcategory and the Metal Finishing Job Shops subcategories (see Table 2.5).

When a facility covered by an existing metals effluent guideline (other than Electroplating or Metal Finishing) discharges wastewater from unit operations not covered under that existing metals guideline but covered under MP&M, it will need to comply with both regulations (see 40 CFR 438.1(c)). In those cases, the permit writer or control authority (e.g., Publicly Owned Treatment Works) will combine the limitations using an approach that proportions the limitations based on the different in-scope production levels (for production-based standards) or wastewater flows. POTWs refer to this approach as the "combined wastestream formula" (40 CFR 403.6(e)), while NPDES permit writers refer to it as the "building block approach". Permit writers and local control authorities currently issue permits and control mechanisms for many facilities in other effluent guidelines categories where overlaps with more than one effluent limitation guidelines regulation occur (e.g., Organic Chemicals, Plastics, and Synthetic Fibers; Pesticide Manufacturing; Pesticide Formulating, Packaging, and Repackaging; and Pharmaceutical Manufacturing).

EPA does not intend the preceding table to be exhaustive, but rather to provide a general overview of the proposed applicability of the Electroplating, Metal Finishing, and Metal Products & Machinery effluent guidelines.

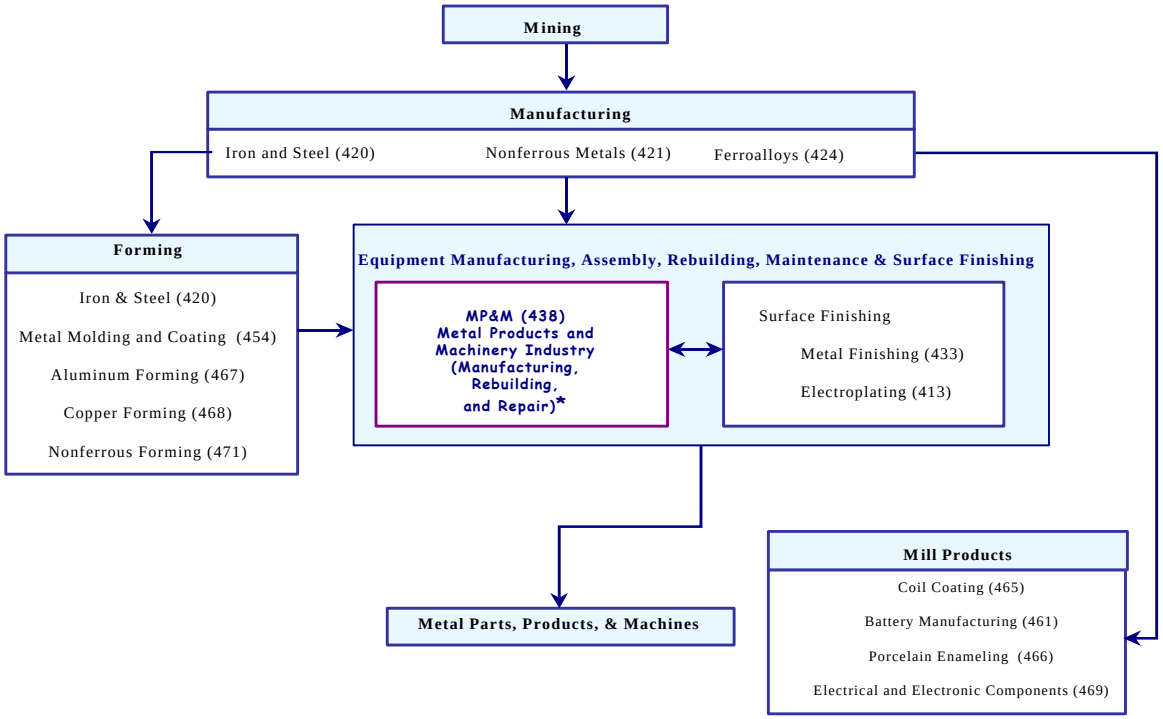
Figure 2.1 illustrates the relationship among the various metals industries effluent guidelines.

Table 2.5: Proposed Coverage by MP&M Subcategory

Subcategory	Proposing to Continue Coverage under 40 CFR Part 413 (Electroplating)	Proposing to Continue Coverage under 40 CFR Part 433 (Metal Finishing)	Proposing Coverage under 40 CFR Part 438 (Metal Products & Machinery)
General Metals	none	Existing facilities that are currently covered (or new facilities that would be covered) by 433 AND are indirect dischargers that introduce less than or equal to 1 million gallons per year into POTW.	All new and existing direct dischargers in this subcategory regardless of annual wastewater discharge volume and all new and existing indirect dischargers in this subcategory with annual wastewater discharges greater than 1 million gallons per year.
Metal Finishing Job Shops	none (see non-chromium anodizing)	none (see non-chromium anodizing)	All new and existing direct and indirect dischargers under this subcategory. These facilities would no longer be covered by 413 or 433.
Non-Chromium Anodizing[a]	Existing indirect dischargers that are currently covered by 413 AND that only perform non-chromium anodizing (or do not commingle their non-chromium anodizing wastewater with other process wastewater for discharge).	New and existing indirect dischargers (not covered by 413) that only perform non-chromium anodizing (or do not commingle their non-chromium anodizing wastewater with other process wastewater for discharge).	Existing and new direct dischargers that only perform non-chromium anodizing (or do not commingle their non-chromium anodizing wastewater with other process wastewater for discharge).
Printed Wiring Board (Printed Circuit Board)	none	none	All new and existing direct and indirect dischargers under this subcategory. These facilities would no longer be covered by 413 or 433.
Steel Forming & Finishing [b]	N/A	N/A	All new and existing direct and indirect discharges under this subcategory as described.
Oily Waste	N/A	N/A	All new and existing direct and indirect dischargers under this subcategory as described. This subcategory excludes new and existing indirect dischargers that introduce less than or equal to 2 MGY into a POTW. Facilities under the cutoff are not and will not be covered by national categorical regulations.
Railroad Line Maintenance	N/A	N/A	All new and existing direct dischargers under this subcategory as described. There are no national categorical pretreatment standards for these facilities.
Shipbuilding Dry Docks	N/A	N/A	All new and existing direct dischargers under this subcategory as described. There are no national categorical pretreatment standards for these facilities.

[a] Facilities that perform anodizing with chromium or with dichromate sealants (or commingle their non-chromium anodizing process wastewater with wastewater from other MP&M subcategories) all fall under the Metal Finishing Job Shop subcategory and will only be covered by 438.
[b] Includes cold forming of steel wire, bars, rods, pipes, and tubes.
Source: U.S. EPA analysis.

Figure 2.1: Metals Industries Effluent Guidelines Covered Under 40CFR



* Includes cold forming of steel wire, bars, rods, pipes, and tubes.

Source: U.S. EPA analysis.

2.5 Meeting Legislative and Litigation-Based Requirements

EPA is proposing effluent limitations guidelines and standards for the MP&M industry under authority of the CWA, Sections 301, 304, 306, 307, and 501. These CWA sections require the EPA Administrator to publish limitations and guidelines for controlling industrial effluent discharges consistent with the overall CWA objective to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." EPA's proposal of the MP&M industry regulation responds to these requirements.

In addition, the proposed MP&M regulation responds to the requirements of a consent decree entered by the Agency as a result of litigation. Section 304(m) of the CWA (33 U.S.C. 1314(m)), added by the Water Quality Act of 1987, required EPA to establish schedules for (i) reviewing and revising existing effluent limitations guidelines and standards, and (ii) promulgating new effluent guidelines. On January 2, 1990, EPA published an Effluent Guidelines Plan (55 FR 80), in which schedules were established for developing new and revised effluent guidelines for several industry categories. One of the industries for which the Agency established a schedule was the Machinery Manufacturing and Rebuilding Category (MM&R).[9]

The Natural Resources Defense Council, Inc. **(NRDC)** and Public Citizen, Inc. challenged the Effluent Guidelines Plan in a suit filed in U.S. District Court for the District of Columbia (NRDC et al v. Reilly, Civ. No. 89-2980). The plaintiffs charged that EPA's plan did not meet the requirements of Section 304(m). A Consent Decree in this litigation was entered by the Court on January 31, 1992. This plan required, among other things, that EPA propose effluent guidelines for the MP&M category by November, 1994 and take final action on these effluent guidelines by May, 1996. EPA filed a motion with the Court on September 28, 1994, requesting an extension until March 31, 1995, for the EPA Administrator to sign the proposed regulation and a subsequent four month extension for signature of the final regulation in September 1996. EPA

[9] The name was changed to Metal Products and Machinery (MP&M) in 1992 to avoid confusion over what was covered by the rule.

published a proposal entitled, "Effluent Limitations Guidelines, Pretreatment Standards, and New Source Performance Standards: Metal Products and Machinery" (60 FR 28210) on May 30, 1995.

EPA initially divided the industry into two phases based on industrial sector, as the Agency believed that would make the regulation more manageable. The Phase I proposal included the following industry sectors: Aerospace; Aircraft; Electronic Equipment; Hardware; Mobile Industrial Equipment; Ordnance; and Stationary Industrial Equipment. At that time, EPA planned to propose a rule for the Phase II sectors approximately three years after the MP&M Phase I proposal.

EPA received over 4,000 pages of public comment on the Phase I proposal. One area where commenters from all stakeholder groups (i.e., industry, environmental groups, and regulators) were in agreement was that EPA should not divide the industry into two separate regulations. Commenters raised concerns regarding the regulation of similar facilities with different compliance schedules and potentially different limitations for similar processes based solely on whether the facilities were in a Phase I or Phase II MP&M industrial sector. Furthermore, a large number of facilities performed work in multiple sectors. In such cases, permit writers and control authorities (e.g., POTWs) would need to decide which MP&M rule (Phase I or 2) applied to a facility.

Based on these comments, EPA decided to combine the two phases of the regulation into one proposal. The proposal addressed by this report completely replaces the 1995 proposal. Under the 304(m) decree as amended, these MP&M rules are to be promulgated in December 2002.

GLOSSARY

Best Available Technology Economically Achievable: Effluent limitations for direct dischargers, addressing priority and non-conventional pollutants. BAT is based on the best existing economically achievable performance of plants in the industrial subcategory or category. Factors considered in assessing BAT include the cost of achieving BAT effluent reductions, the age of equipment and facilities involved, the processes employed, engineering aspects of the control technology, potential process changes, non-water quality environmental impacts (including energy requirements), economic achievability, and such factors as the Administrator deems appropriate. The Agency may base BAT limitations upon effluent reductions attainable through changes in a facility's processes and operations. Where existing performance is uniformly inadequate, EPA may base BAT upon technology transferred from a different subcategory within an industry or from another industrial category.

Best Practicable Control Technology Currently Available: Effluent limitations for direct discharging facilities, addressing conventional, toxic, and non-conventional pollutants. In specifying BPT, EPA considers the cost of achieving effluent reductions in relation to the effluent reduction benefits. The Agency also considers the age of the equipment and facilities, the processes employed and any required process changes, engineering aspects of the control technologies, non-water quality environmental impacts (including energy requirements), and such other factors as the Agency deems appropriate. Limitations are traditionally based on the average of the best performances of facilities within the industry of various ages, sizes, processes, or other common characteristics. Where existing performance is uniformly inadequate, EPA may require higher levels of control than currently in place in an industrial category if the Agency determines that the technology can be practically applied.

bioavailable: Degree of ability to be absorbed and ready to interact in organism metabolism.
(http://www.epa.gov/OCEPAterms)

chemical oxygen demand: A measure of the oxygen required to oxidize all compounds, both organic and inorganic, in water.
(http://www.epa.gov/OCEPAterms/cterms.htm)

Clean Water Act: Act passed by the U.S. Congress to control water pollution. Formerly referred to as the Federal Water Pollution Control Act of 1972 or Federal Water Pollution Control Act Amendments of 1972 (Public Law 92-500), 33 U.S.C. 1251 et. seq., as amended by: Public Law 96-483; Public Law 97-117; Public Laws 95-217, 97-117, 97-440, and 100-04.

conventional pollutants: Statutorily listed pollutants understood well by scientists. These may be in the form of organic waste, sediment, acid, bacteria, viruses, nutrients, oil and grease, or heat.
(http://www.epa.gov/OCEPAterms)

distributional effects: Occurs when the distribution of pollution and environmental harm is not random among the U.S. population, but instead is concentrated among certain population subgroups based on socio-economic or other demographic characteristics, then the uncompensated environmental externalities may produce undesirable transfers of economic welfare among subgroups of the population.

externalities: Costs or benefits of market transactions that are not reflected in the prices buyers and sellers use to make their decisions. An externality is a by-product of the production or consumption of a good or service that affects someone not immediately involved in the transaction.
(http://www.enmu.edu/users/biced/home/glossary.html)
A type of market failure that causes inefficiency.
(http://www.amosweb.com/cgi-bin/gls_dsp.pl?term=externalities)

nonconventional pollutants: Any pollutant not statutorily listed or which is poorly understood by the scientific community.
(http://www.epa.gov/OCEPAterms)

oil and gas (O&G): These organic substances may include hydrocarbons, fats, oils, waxes and high-molecular fatty acids. Oil and grease may produce sludge solids that are difficult to process.
(http://www.epa.gov/owmitnet/reg.htm)

Pretreatment Standards for Existing Sources (PSES): Categorical pretreatment standards for existing indirect dischargers, designed to prevent the discharge of pollutants that pass through, interfere with, or are otherwise incompatible with the operation of POTWs. Standards are technology-based and analogous to BAT effluent limitations guidelines.

priority pollutants: 126 individual chemicals that EPA routinely analyzes when assessing contaminated surface water, sediment, groundwater or soil samples.

publicly-owned treatment works: A treatment works for municipal sewage or liquid industrial wastes that is owned by a State or municipality.

socially optimal level: Situation in which it is impossible to make any individual better off without making someone else worse off. Also referred to as Pareto optimal.

social welfare: The sum of the welfare of all participants in the society; measured by the sum of consumer surplus -- the value consumers derive from goods and services less the price they have to pay for the goods and services -- and producers' surplus -- the revenue received by producers of goods and services less their costs of producing the goods and services.

third parties: Those affected by a by-product of the production or consumption of a good or service that are not immediately involved in the transaction.

total suspended solids: A measure of the suspended solids in wastewater, effluent, or water bodies, determined by tests for "total suspended non-filterable solids." (http://www.epa.gov/OCEPAterms/tterms.html).

toxic-weighted pollutants: This measure weights quantities of different pollutants in effluents by a measure of their relative toxicity. Toxic-weighted loadings measures the relative toxic effects of discharges containing different mixtures of pollutants.

uncompensated: Where parties damaged by externalities receive no compensation for accepting the damage.

ACRONYMS

BAT: Best Available Technology Economically Achievable
BPT: Best Practicable Control Technology Currently Available
COD: chemical oxygen demand
CWA: Clean Water Act
MM&R: Machinery Manufacturing and Rebuilding
MP&M: Metal Products and Machinery
NPDES: National Pollutant Discharge Elimination System
NRDC: Natural Resources Defense Council
O&G: oil and grease
POTW: publicly-owned treatment works
PSES: Pretreatment Standards for Existing Sources
TSS: total suspended solids